

## CLAIMS

1. A needle apparatus characterised by a thin walled sleeve having a proximal end and a distal end, a tubular needle having a distal end and a proximal end, the needle having a sharp point at the distal end thereof, the needle being  
5 closely engaged by the sleeve, the needle and the sleeve being longitudinally moveable relative to one another between a first position at which the needle extends from the sleeve and a second position at which the sharp point is located within the sleeve, the apparatus further comprising a hub in which the needle is fixedly mounted adjacent the proximal end of the needle, the needle  
10 extending from the hub so that the distal end thereof is located externally of the hub, the sleeve having the proximal end thereof located within the hub and being longitudinally slidably mounted relative to the hub, the sleeve extending from the hub so that the distal end thereof is located externally of the hub, the needle apparatus being arranged to pierce tissue when the sleeve and the  
15 needle are in the relative first position and being such that after the tissue has been pierced the needle is arranged to be withdrawn from the tissue whilst the sleeve remains in situ in the tissue as a result of the pressure applied radially by surrounding tissue.
- 20 2. A needle apparatus according to Claim 1, characterised in that in the relative first position the sleeve is not latched, whilst in the relative second position the sleeve is latched in position.

3. A needle apparatus according to Claim 2, characterised in that the sleeve is provided with a laterally extending projection and means is provided for positively engaging the projection in the relative second position so as to prevent movement of the sleeve towards the proximal end thereof.
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4. A needle apparatus according to Claim 3, characterised in that the projection is located within the hub.
5. A needle apparatus according to Claims 3 or 4, characterised in that the projection is in the form of a disc.
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6. A needle apparatus according to any one of Claims 2 to 5, characterised in that there is provided at least one finger arranged to engage with the projection in the second relative position so as to prevent movement of the sleeve towards the proximal end thereof.
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7. A needle apparatus according to Claim 6, characterised in that the or each finger is located within the hub.
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8. A needle apparatus according to any one of the preceding claims, characterised in that the needle remains in a fluid pathway of the apparatus at all times.

9. A needle apparatus according to any one of the preceding claims, characterised in that the needle moves a short distance between the relative first and second positions.
- 5 10. A needle apparatus according to any one of the preceding claims characterised in that the pressure applied by the surrounding tissue acts directly on the sleeve.
- 10 11. A needle apparatus according to any one of Claims 1 to 9, characterised in that a catheter introducer is mounted about the sleeve initially, the catheter introducer comprising a sheath which enters the tissue simultaneously with the sleeve.
- 15 12. A needle apparatus according to Claim 11, characterised in that the tissue applies radial pressure to the sleeve indirectly through the sleeve such that when the sleeve moves to the relative second position the sleeve may be withdrawn from the sleeve to leave the catheter introducer in place in the tissue.
- 20 13. A needle apparatus according to Claim 12, characterised in that the catheter introducer also has a hub attached to the sleeve, the hub being arranged to be restrained from movement manually or by attachment to the skin upon movement of the sleeve.

14. A needle apparatus according to any one of the preceding claims, characterised in that the apparatus is arranged such that the sleeve and needle may be moved from the relative first position to the relative second position when the tissue has been pierced by simple application of traction in the proximal direction to the hub by an operator.

15. A method operating a needle apparatus according to any one of the preceding claims, characterised in that tissue is pierced by the sharp point of the needle with the needle and the sleeve in the relative first position, the sleeve then enters the tissue and the needle is subsequently withdrawn from the tissue by simple application of traction to the hub by an operator in the proximal direction until the needle and the sleeve reach the second relative position.